## *Note on the Performance of the Westminster Clock.*

By Thomas Buckney.

The reputation of the great clock of the Houses of Parliament is so well established that some adequate reason must be given to justify any further reference to its performance here. This will, I think, be furnished by an inspection of its error from Greenwich time on each day of the period under review, viz., from March 29 last until June 9. The clock, as is well understood, is not allowed to run for an indefinite time with an accumulated error like an astronomical clock, but is kept as close to Greenwich time as possible, the necessary correction being made as soon as the error reaches 2 seconds either fast or slow. The pendulum is never stopped for this purpose, but alterations of rate are effected by the addition or removal of small weights in such a way as practically to shorten or lengthen the pendulum, whilst errors of 4 seconds or more are corrected by stopping the train of wheels or allowing them to run on for a few seconds as may be necessary. Four seconds is, however, the smallest alteration that can be made in this way. Now the clock, which, in common with most others in the country, was stopped by the snowstorm of Dec. 26 last (the snow having blocked the path of the hands), had since been going very well, requiring, however, small corrections from time to time. The last of these was made on March 29, and since that day no alteration or correction whatever has been made.

The following table shows the daily error of the clock since that time, and the figures, which have been kindly furnished by the Astronomer Royal from the records of the Royal Observatory, may be taken as authentic. It should be mentioned that the clock automatically reports itself by electric current to the Royal Observatory twice daily:

| 1887. | secs. | 1887. | secs. | 1887. | secs. | 1887. | secs. |
|---|---|---|---|---|---|---|---|
| March 29 | −0·0 | April 9 | −2·0 | April 20 | −1·0 | May 1 | −1·0 |
| 30 | −0·0 | 10 | −* | 21 | −2·0 | 2 | −2·0 |
| 31 | −1·0 | 11 | −1·0 | 22 | −2·0 | 3 | −1·0 |
| April 1 | −1·0 | 12 | −1·0 | 23 | −1·0 | 4 | −1·0 |
| 2 | −1·0 | 13 | −1·0 | 24 | −1·5 | 5 | −1·0 |
| 3 | −3·0 | 14 | −1·0 | 25 | −2·0 | 6 | −1·0 |
| 4 | −2·0 | 15 | −1·0 | 26 | −1·0 | 7 | −1·0 |
| 5 | −2·0 | 16 | −1·0 | 27 | −1·5 | 8 | −1·0 |
| 6 | −2·0 | 17 | −1·0 | 28 | −2·0 | 9 | −1·0 |
| 7 | −2·0 | 18 | −1·0 | 29 | −1·5 | 10 | −1·0 |
| 8 | −* | 19 | −1·0 | 30 | −1·5 | 11 | −2·0 |

* No observation taken on these days.

| 1887. | secs. | 1887. | secs. | 1887. | secs. | 1887. | secs. |
|---|---|---|---|---|---|---|---|
| May 12 | −2·0 | May 20 | −2·0 | May 27 | −2·0 | June 3 | −1·0 |
| 13 | −2·0 | 21 | −2·0 | 28 | −2·0 | 4 | −1·0 |
| 14 | −2·0 | 22 | −2·0 | 29 | −1·0 | 5 | −0·0 |
| 15 | −2·0 | 23 | −2·0 | 30 | −1·0 | 6 | −0·0 |
| 16 | −2·0 | 24 | −2·0 | 31 | −2·0 | 7 | −0·0 |
| 17 | −2·0 | 25 | −2·0 | June 1 | −1·0 | 8 | +1·0 |
| 18 | −2·0 | 26 | −* | 2 | −1·0 | 9 | +0·7 |
| 19 | −2·0 | | | | | | |

An inspection of these figures will show that on March 29 the clock was exactly to Greenwich time, and again on June 5, 6, and 7. In the meantime it had made small variations, its greatest error having been 3 seconds on April 3. The most remarkable part of the table is the period comprised between May 11 and May 28, the clock having maintained an error of 2 seconds without any variation whatever, and on 30 out of the 72 days its error was exactly 1 second—but these were not consecutive days —one group, however, of 10 days in succession being noted.

I believe this performance is unprecedented, so it may deserve to be placed on record.

1887, *June* 9.

P.S.—The clock is still 2 secs. slow, no correction having been required up to the present time, July 6th.

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*Note on the Orbit of Comet Ross* (1883 *II.*) By Lieut.-General J. F. Tennant, R.E., F.R.S.

Mr. Bryant has pointed out two errors in the "Comparisons of the Observations of Mr. Ross's Comet (II. of 1883)" with my ephemeris, which would considerably affect the last normal place, and which, moreover, render the observations so much more accordant that it would now be worth while to get normals with more trouble. The gross result would possibly be to approximate to his orbit, and I hasten to recognise the defect of that I proposed.

* No observation taken on this day.